



OAK RIDGE ENHANCED TECHNOLOGY AND TRAINING CENTER

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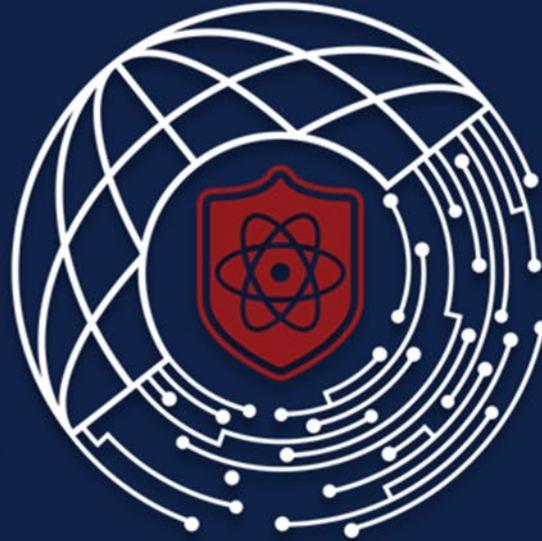
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ORETTC IS A FACILITY AND A CAPABILITY

DESIGN

EXECUTE

INNOVATE



1) **DESIGN**

- a. Develop curriculum and teaching methodology
- b. Measure training outcomes
- c. Instructor certification

2) **EXECUTE**

- a. Schedule work
- b. Deliver gradated content

3) **INNOVATE**

- a. Technology demonstration
- b. University collaboration
- c. Educational technologies

Be the nation's preeminent training campus for radiation response, nuclear processing, and emerging technology arenas.



- ▶ ~40,000 sq. ft
- ▶ 49 Hard-walled offices
- ▶ 13 Training Rooms
- ▶ 3 Collaboration Rooms
- ▶ High Bay
- ▶ Occupancy November 2022



**OAK RIDGE
ENHANCED TECHNOLOGY
AND TRAINING CENTER**

State funded Emergency Response Training Facility (ERTF)

**Simulated
Nuclear and
Radiological
Activities Facility
(SNRAF)**



NORTHEAST VIEW OF THE SNRAF ENTRANCE

**Emergency Response
Training Facility (ERTF)**



A VIEW OF THE ERTF ENTRANCE



NORTHWEST VIEW OF THE SNRAF



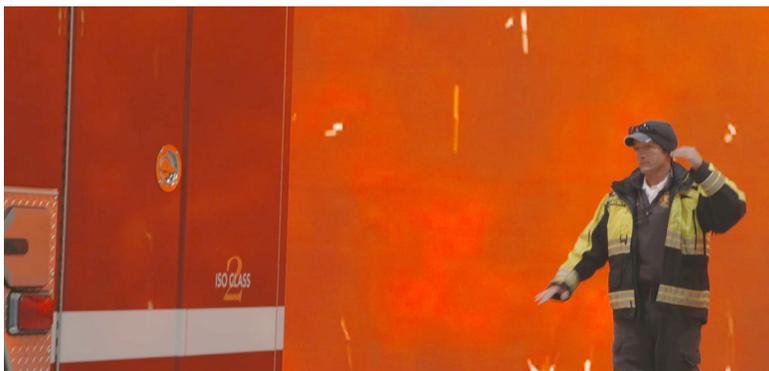
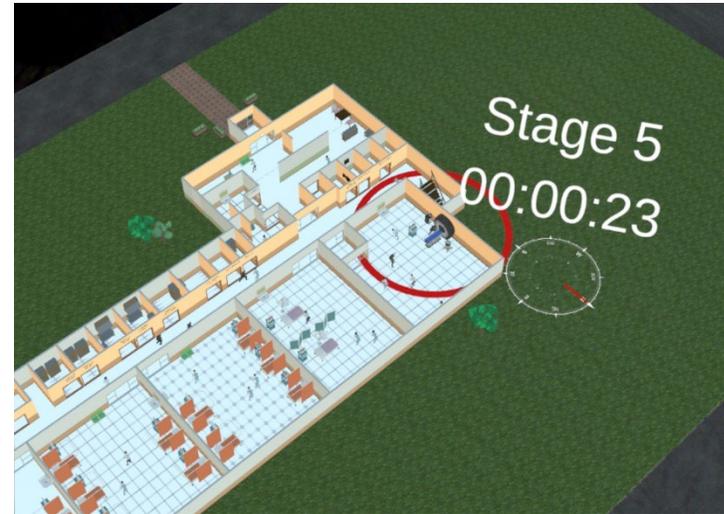
SOUTHWEST VIEW OF THE SNRAF



COURTYARD VIEW OF THE ERTF ON THE SOUTH SIDE
OF THE FACILITY

EMERGENCY RESPONSE TRAINING

ORETTC provides opportunity to strengthen our local, state, federal and international and interagency partners in security operations, nuclear nonproliferation, and emergency response.



TIERED TRAINING



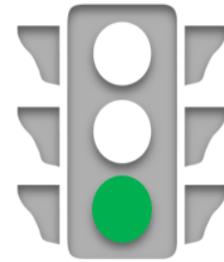
CLASSROOM

Curriculum designed to create engaging instruction in collaborative environments for **foundational knowledge**



SIMULATION

Curriculum designed in a simulated immersive environment to **practice in a realistic environment** without hazard to the learner



FIELD TRAINING

Curriculum designed to create opportunities for hands-on, scenario-based training to **implement knowledge** acquired in previous phases of training



WHY ARE WE HERE?



SIMULATION

Curriculum designed
in a simulated
immersive
environment to

*practice in a realistic
environment* without
hazard to the learner

- Increase Awareness
- Increase Collaboration
- Discuss which XR technology to use
- Work toward a unified XR strategy



WHICH TOOL SHOULD WE USE?

MIXED REALITY

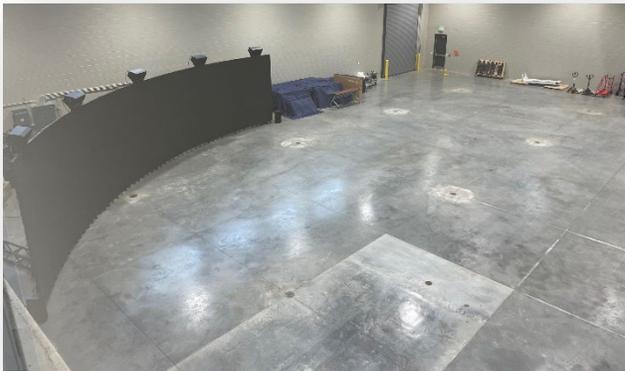


REAL ENVIRONMENT

AUGMENTED REALITY (AR)

AUGMENTED VIRTUALITY (AV)

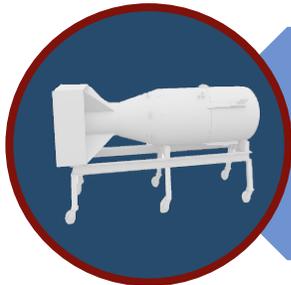
VIRTUAL REALITY (VR)





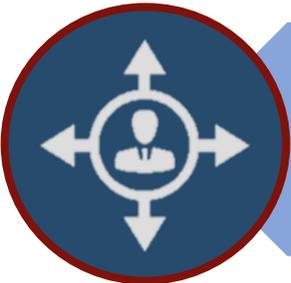
On the Job Training

- Process/procedure
- Chemical operation
- Production technician
- Equipment/instrumentation training



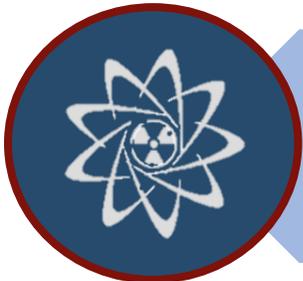
Weapons Training

- Assembly
- Disassembly



Scenario Driven Exercises

- Tactical Decision Maker
- Nuc/Rad assaulter



High Consequence Response

- Emergency response
- Abnormal conditions
- Nuc/Rad alarm response



HARDWARE/SOFTWARE FRAMEWORK

Content

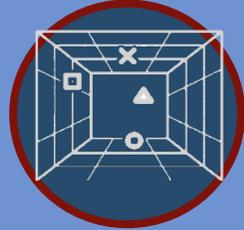
XR Tools

Training solution



Hardware

- AR/VR headset
- Haptic devices
- Motion tracking workspace



Software

- Engineering drawing transfer
- Simulated environment construction
- AI response (action and language processing)



Education

- Incorporation of andragogy
- Measure educational outcomes
- Training and testing
- Abnormal condition response
- Biometrics



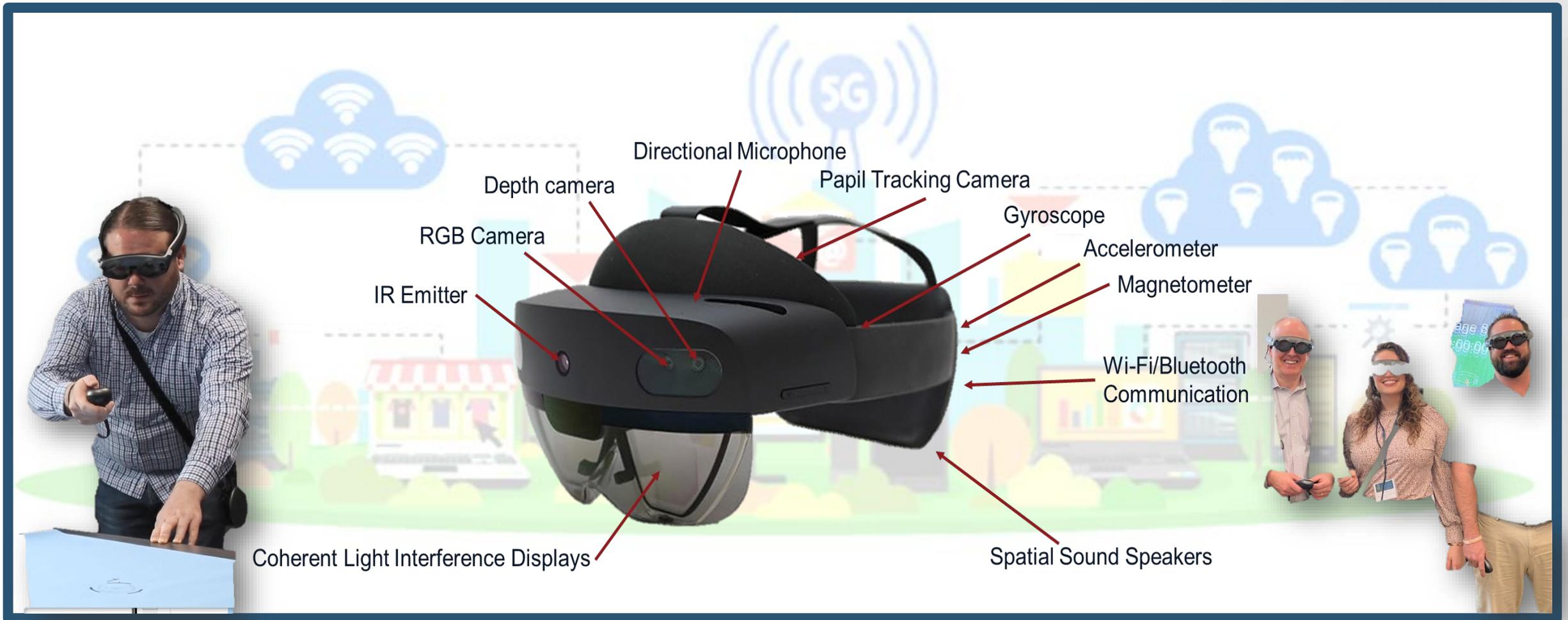
Security

- Cyber for hardware and software
- Server integration
- Connectivity of hardware, software, and multiple platers

HOW DO WE COMMUNICATION IN SECURE ENVIRONMENTS?



HOW DO WE COMMUNICATION IN SECURE ENVIRONMENTS?



HOW IMMERSIVE CAN WE BE?



PARTNERSHIPS



- Leverage expertise in simulation and modeling
- Build a game design pipeline for AR/VR training.



- Leverage expertise in grant writing for first responders.
- Chemical operator training
- Partner for cyber defense training



- Leverage expertise in applied data analytics to develop AR training applications



- Leverage technical support, infrastructure, and integration services in support of the Learning Lab



- Steering Committee





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